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Air Conditioning.

Place of ice in air-conditioning field. By Clifford F. Holske. Refrigeration. v.59, no. 4. April, 1936. p. 28-30.

Principles and practices involved in the controlled conditioning of air. By N.C. Ebaugh. Southern Power Journal. v. 54, no.4. April, 1936. p. 52, 54, 56, 58.

Principles and practices involved in controlled conditioning of air. By N.C. Ebaugh. Southern Power Journal. v. 54, no. 5. May, 1936. p.23-26. Conditioned air is without value unless it can be delivered to the point of need. Fans of various types and designs are provided for this purpose, but an understanding of their principles is necessary to accomplish proper selection and application.

Psychromatics. By E. Vernon Hill. Aerologist. v. 12, no. 4. April, 1936. p.18-20, 29, 31. Part 3.

Associations.

A.S.A.E. officers for 1936-37. Agricultural Engineering. v. 17, no. 4. April, 1936. p.169.

Proceedings of the eleventh annual meeting of the National Joint Committee on Fertilizer Application, held at Chicago, Ill., December 4, 1935. Washington, D. C., National Fertilizer Association, 1936. 104p.

Provisional program 30th annual meeting of American Society of Agricultural Engineers, Stanley Hotel, Estes Park, Colorado, June 22 to 25, 1936. Agricultural Engineering. v. 17, no. 4. April, 1936. p.168.

Transactions of the American Society of Agricultural Engineers. v.26 and 27. 1932 and 1933. St. Joseph, Mich., 1936. 135 p.

Building Construction.

Cutting costs with power saws. American Builder. v. 58, no. 3. March, 1936. p. 46-47, 128. Part 2. Getting power; building bench; concrete form cutting; multiple cutting of floor joists.

New connectors make strong timber joints. By Frank P. Cartwright. American Builder. v.58, no. 4. April, 1936. p. 84-92. Revolutionary improvement in heavy timber construction perfected during past year.

Building Construction. (Cont'd)

Six selected entrances. American Builder. v.58, no. 3. March, 1936. p.58-59.

Stair framing suggestions. By Oscar C. Knecht. American Builder. v.58, no.3. March, 1936. p.85-86, 128.

Wrong on adobes. Arizona Producer. v.15, no.3. April 15, 1936. p.13.  
Avoid adobe soil if you'd make first class mud bricks. Gravelly loam is best, but anything between 9 and 28% clay is all right.

Corrosion.

Corrosion, causes and prevention. By Frank N. Speller. 2d edition. N.Y., McGraw-Hill Book Co. Inc., 1935. 694p.

Effect of soluble fertilizers on cement pipe. By D.D. Waynick. California Citrograph. v.20, no.12. October, 1935. p.390-391.

Nickel alloys in sewage disposal. By G.L. Cox. Municipal Sanitation. v.7, no.5. May, 1936. p.163-166. Review of characteristics and corrosion resistant qualities of monel metal ni-resist and nickel in sewage treatment plants.

Cotton and Cotton Ginning.

Movement to improve cotton ginning in the United States. By F.L. Gordes, and Charles A. Bennett. Cotton and Cotton Oil Press. v.37, no.12. March 21, 1936. p.10-11.

Crop Production.

Crop production costs. By Harry G. Davis. Farm Implement News. v.57, no. 8. April 9, 1936. p.60.

Crop production costs rising. By H.G. Davis. Implement and Tractor. v.51, no.7. April 4, 1936. p.19. Table gives estimated average costs of preparing seedbed, planting, cultivating and harvesting crops in 1933 and 1934.

Dairy Farm Equipment.

How to clean the mechanical milker. By F.C. Barney. Successful Farming. v.34, no.5. May, 1936. p.12, 74-75. Practical dairyman gives his ideas on care that will guarantee high-quality product of which machines are capable.

Dams.

Solving a dam break by deduction. By P.E. Green. Engineering News-Record. v. 116, no.16. April 16, 1936. p.556-558. Cause of unwitnessed overtopping determined by rain-gage records, runoff calculations and levels of remaining structures.

Dams. (Cont'd)

Steel dams. By Otis Ellis Hovey. New York American Institute of Steel Construction, 1935. 122p. Reviews a few of applications of steel to fixed dams and indicates methods of design and suitability of steel for such structures.

Drainage.

Good drainage is essential. By R.L. Cook. Michigan Farmer. v. 186, no. 4. February 15, 1936. p.17.

Electric Heating.

Use of electric heating in the country. Monthly Bulletin of Agricultural Science and Practice. v.27, no.2. February, 1936. p.69-70. For study of possibilities of electric heating in country Governmental Council of Rural Engineering in Germany organized in 1934-1935, in collaboration with certain electrical power stations and numerous farms, tests concerning various apparatus and particularly electric kitchens and hot water tanks, cookers for cattle food, ovens and electric absorption refrigerators. Results of these tests are not yet published.

Electric Wiring.

Why inspect farm electric wiring? By L.P. Dondel. Michigan Farmer. v. 186, no. 4. February 15, 1936. p. 3, 18-19.

Electricity on the Farm.

Electric equipment in the home - its care and repair. By Albert V. Krewatch. College Park, Md., 1936. 23p. University of Maryland. Extension Service. Bulletin no. 76.

Electricity serves the farm household. By Gail M. Redfield and Truman E. Hinton. Lafayette, Ind., 1936. 12p. Purdue University Agricultural Experiment Station. Circular no. 214.

Farm electricity gains. Wisconsin Agriculturist and Farmer. v.63, no.7. March 28, 1936. p.5. Increase of 44,840 farm electric customers during year 1935, bringing total to 788,795, or 12 $\frac{1}{2}$  per cent of all classes of farms in United States, is reported by Edison Electric Institute in its annual publication of farm statistics. This gain of nearly 45,000 electrified farms compares with figure of 30,400 for previous year and with high record of 113,000 made in 1920.

Glimpses of rural America "toward an electrified America." By S.W. Fletcher. Pennsylvania Farmer. v.114, no.8. April 11, 1936. p. 25, 31. Discussion of T.V.A. objectives.

Many jobs for electricity. Oregon Farmer. v.59, no.6. March 19, 1936. p.16.

## Erosion Control.

Conserving our soil resources for future generations. By H.R. Tolley. Nation's Agriculture. v. 11, no. 7. April, 1936. p.16-17, 19.

Cooperative efforts launched to control erosion along highways. By T.B. Chambers. Soil Conservation. v. 1, no. 9. April, 1936. p. 1-4, 11. Ultimate objective should contemplate adoption of effective erosion control measures on existing highways, and inclusion of them in plans for future highways. In fact, by far greatest good can be accomplished with least expenditure by providing for erosion control and roadside beautification at time highway is first planned.

Crooked rows save moisture. Farmer-Stockman. v.49, no.4. February 15, 1936. p.5.

Cultural methods of controlling wind erosion. By L.E. Call. Journal of American Society of Agronomy. v. 28, no. 3. March, 1936. p.193-201.

Don't let water and wind steal your richest soil. By A.F. Gustafson. The Furrow. v.41, March-April, 1936. p.4, 11.

Erosion control on mountain roads. By Charles J. Kraebel. Washington, D.C., 1936. 45p. U.S. Department of Agriculture. Circular no. 380.

Prevent erosion. California Cultivator. v. 83, no. 6. March 14, 1936. p.214.

Shelterbelts to check erosion. By F.B. Arnett. Montana Farmer. v.23, no. 15. April 1, 1936. p.6-7.

Some data on beach protection works. By M.N. Lipp. Civil Engineering. v.6, no.5. May, 1936. p.291-295. In each case investigator has noted degree of deterioration that has taken place, and efficiency of design as indicated by beach areas preserved or added. Importance of adequate existing works on Florida east coast.

## Explosives.

Where an explosion helps. American Agriculturist. v. 133, no. 6. March 14, 1936. p. 12. Dynamite isn't dangerous if it is handled intelligently, but if there is any doubt about your own ability, have experienced operator do work so that you may fully enjoy results.

## Farm Buildings and Equipment.

Home-made potato sorting table. By Harry L. Garver. Pullman, Wash., 1936. 4p. Washington. State College. Extension Service. Bulletin no. 222.

Something new in a storage building and corn crib. By Judson Vogdes. New Jersey Farm & Garden. v. 6, no. 11. November, 1935. p. 7. Built in form of half cylinder, 50 feet long and 30 feet wide. Curved roof does not look unlike an airship hangar. In addition surface of roof is red brick. Entire structure is built of reinforced masonry.

### Farm Buildings & Equipment. (Cont'd)

This is new form of construction in which steel bars are placed in mortar joints, thus strengthening material. Roof is made up of pre-cast slabs, all made on ground and raised into position on curved ribs. The slabs are 12 inches wide, 7 feet long and  $2\frac{1}{2}$  inches thick. This building, 50 feet by 30 feet, including corn crib, everything complete, can be built for less than \$2,000. Now construction is adaptable for barns, silos, walls, culverts, milk houses and variety of work around farm.

### Farm Income.

Farmers fill the vacuum. By F.B. Nichols. Printers' Ink. v. 173, no. 10. December 5, 1935. p. 21, 24-25. Nation's sales volume increases mightily as larger streams of cash flow over the countryside.

### Farm Machinery and Equipment.

Better equipment - better farming. By L.O. Brackeen. Progressive Farmer. v. 51, no. 4. April, 1936. p. 11.

Care and repair of the mowing machine. By A.J. Bell. East Lansing, Mich., 1935. 14p. Michigan State College. Extension Service. Bulletin no. 153.

Census verifies upturn in 1935. Implement and Tractor. v. 51, no. 9. May 2, 1936. p. 10-11. Industry's production reaches valuation of \$351,998,066, while total sales are almost as large. Year's output exceeded 1931 total by 55 per cent. Table 1. Value of farm equipment and related products manufactured and sold by classes: 1935, 1931 and 1930. Table 2. Principal items of farm equipment and related products manufactured and sold by number and value: 1935.

Deep plowing. By Jack Klein. California Cultivator. v. 83, no. 5. February 29, 1936. p. 183. Moldboard stands 44 inches high, and from point of share to top corner of mold board is 12 feet. Share is 50 inches long. Plow and frame weighs about 4 tons. It plows a furrow 52 to 54 inches deep and it takes three 60 h.p. tractors to pull it. Probably this system of plowing would not work in all kinds of places, but in regions where soil has been built up in layers, or where top soil has been farmed to death, it certainly does increase production, very often enough to more than pay cost of plowing first season, and effect lasts for several years.

Do your fixing early. By E.T. Leavitt. New England Homestead. v. 109, no. 6. March 14, 1936. p. 16. Farm equipment is made for hard work and when given proper care will serve farmer many years with small outlay for repairs. However, there is hardly a tool on the farm that should not receive some attention before work is started in the field.

Farm machinery at home and abroad. By G.W. McCuen. Ohio Farmer. v. 177, no. 5. February 29, 1936. p. 3, 31.

Farm Machinery & Equipment. (Cont'd)

Farm machinery development. Dakota Farmer. v. 56, no. 6. March 14, 1936. p. 128.

Farmers of the machine age. By Ben James. Country Home. v. 60, no. 4. April, 1936. p. 13-14.

Fix your machinery early. By E.T. Leavitt. Hoard's Dairyman. v. 81, no. 3. February 10, 1936. p. 71.

Harvests buffalo grass seed. Kansas Farmer. v. 74, no. 5. February 29, 1936. p. 6. Machine made by Hays will help solve pasture trouble. Consists of suction blower which supplies air currents to pick up seed. Suction is carried to grass by means of a large tube and nozzle several feet wide. At first a brush was used in connection with nozzle but it was not satisfactory. Power to run machine has been supplied by combine motor.

Influence of speed of plows on quality of plowing and on construction of machines. By H.J. Hopfen. Monthly Bulletin of Agricultural Science and Practice. v. 27, no. 3. March, 1936. p. 89-91.

Many farmers need new corn planters. By E.T. Leavitt. Farm Implement News. v. 57, no. 8. April 9, 1936. p. 50, 52. When farmer uses old, worn, wobbly-framed corn planter that misses, cracks kernels, and deposits seed so deep that corn plants do not come up, or those that do break through are weak, he is liable to lose one-fifth or more of his crop. Not only does this mean one-fifth loss in crop itself, but it also means one-fifth loss in time, labor, power, and expense of every operation necessary to produce the crop, from plowing, disking, harrowing through to harvesting. It also means that one-fifth of manure or other fertilizer brings no return for year, and labor of spreading it is also lost; that taxes are paid on one-fifth of field from which there is no return; and that interest, in case there is a mortgage, is paid on land investment that yields no return. Improvement in quality of fully 55 per cent is reported by committee of state college agricultural engineers for modern type corn planter as compared to those representing previous period, many of which will still be found operating this season.

More power needed in hay fields. By E.T. Leavitt. Implement and Tractors. v. 51, no. 9. May 2, 1936. p. 20, 40. Conflict of harvesting season with other farm operations and inadequate equipment combine to reduce profits. The heaviest losses come from improper handling.

New farm machinery. Farm Journal. v. 60, no. 5. May, 1936. p. 39.

New machine for making contour furrows. By C.A. Logan. Soil Conservation. v. 1, no. 9. April, 1936. p. 14-15.

New machines for beet growing. By John E. Pickett. Pacific Rural Press. v. 131, no. 12. March 21, 1936. p. 374.

New planters hasten seeding. By E.T. Leavitt. Implement and Tractor. v. 51, no. 7. April 4, 1936. p. 17, 49.

Nursery thresher for sorghum heads. Journal of American Society of Agronomy. v. 28, no. 3. March, 1936. p. 253-254. Thresher is of box type, designed for self-cleaning. Inside is lined with tin that forms funnel leading to grain drawer at bottom. Bottom of funnel, 6 x 8 inches, is large enough to avoid clogging. Grain drawer is 12 x 8 inches and 4 inches deep. Thresher frame and base are built of 2 x 4 inch lumber. Sides of box are 1 x 3 inch tongue and groove boards. Outside dimensions of frame are 21 inches x 17 inches, and 19 inches high. Feeding chute extends above top of box  $1\frac{1}{2}$  inches at front and  $2\frac{1}{2}$  inches at rear. It sits at approximately a 45-degree angle to permit easy insertion of heads. Cylinder was made from block of oak 10 inches long that was bored lengthwise and  $7/8$ -inch steel shaft inserted and secured. Oak cylinder was then turned on lathe to diameter of 4 inches. Cylinder teeth were made from  $1/4$  inch lag screws  $2\frac{1}{4}$  inches long. After screws were in place heads were cut off with belt cutters leaving teeth about 1 inch in length. Teeth were placed 2 inches apart in rows lengthwise of cylinder, and rows were  $1/2$  inch apart. Teeth, in alternate rows, were offset 1 inch to center them in spaces between teeth in adjacent rows. There were 24 rows of teeth, with 5 teeth to row. Shaft ran in bearings bolted on frame work of thresher. Inside width of thresher, 12 inches, allows 1-inch clearance at each end of 10-inch length cylinder to avoid clogging. Concave was made of 2 x 8 inch piece of oak on which concave surface was chiseled. Concave was placed about  $1\frac{1}{2}$  inches from cylinder so that ends of two sets of teeth overlapped about  $3/8$  inch, and was closely fitted and securely fastened to sides of thresher to prevent lodging of grain. Spacing and arrangement of 45 concave teeth was same as those on cylinder. Electric motor is mounted on base at side of thresher. Thresher can be operated by  $1/4$  to  $1/2$  horsepower motor, at speed of about 1,000 R.P.M.

Production and sales of tractors, combines and threshers in 1935. Farm Implement News. v. 57, no. 8. April 9, 1936. p. 31. Reported by U.S. Bureau of Census.

Question of testing agricultural machinery: Editorial. Implement and Machinery Review. v. 61, no. 732. April 1, 1936. p. 1096. No current problem has aroused so much discussion and such difference of opinion as one of wisdom of instituting large scale or organized testing of agricultural implements in this country. Situation which has arisen with regard to tractors is but a symptom of general position and has shown that, while there may be conflict of view, there is always possibility of reconciling all interests in common scheme working to common goal, viz. advancement of agricultural engineering in interests of farming industry it is intended to serve. It is obvious that, properly supported, testing can be made of immense benefit all round, as is being shown by greater importance now attached to official certificates and reports, and it is to be hoped that, in due season, we shall have system of testing in this country that will be recognized as worthy of important agricultural engineering industry we possess.

Farm Machinery & Equipment. (Cont'd)

Repair your machinery now. E.T. Leavitt. Farm and Ranch. v.55, no.3.  
February 1, 1936. p.13.

Thresher for individual grain sorghum heads. By M.H. Byron and H. P. Smith. Agricultural Engineering. v. 17, no. 4. April, 1936. p.162. Division of Agricultural Engineering of Texas Agricultural Experiment Station has built a small machine to thresh and clean grain from individual heads of grain sorghum. Machine is designed to prevent grain from spitting back out of feed hopper and grains from lodging in corners and on projections inside housing about cylinder and concaves. Machine thoroughly cleans itself after each head is threshed. It is also adjustable, compact and sturdy. Cleaner consists of large funnel 30 inches long with diameter of 16 inches at large and 6 inches at small end. 6-inch pipe 12 inches long forms extension for small end. Slotted baffle or grill is installed near center line of cleaner funnel and parallel to it to control movement of grain. In operation grain head is inserted through round hole in feed hopper cover until head passes between cylinder and concave rasps. By slightly rotating head, all of grain is removed. Bottom of feed hopper is small enough to prevent injury to hand holding stem of grain head. After grain is threshed stem is either withdrawn or permitted to pass under cylinder into trash shoe, where it is caught on one-fourth-inch mesh hardware cloth. Shoe can be slipped off and stem and other large trash removed. Threshed grain passes down spout, through hardware cloth in trash shoe, and into small cleaner funnel. It then falls through small slot in side of air funnel over lip baffle and onto slotted baffle, which permits grain to pass down through slots, at same time retarding its speed so that when it reaches lower side of air funnel, it will gently roll down sloping surface into box under bottom edge. Blast of air, created by electric fan, blows small chaff out small end of funnel.

Through modern farm equipment farmer becomes an executive. By Irvin J. Mathews. Successful Farming. v. 34, no. 5. May, 1936. p. 15, 32, 87. From 90 to 95% of price of farm machinery is labor in one form or another, counting mining the ore, transportation, and so on. This is one reason why farm machinery prices do not follow farm prices. More than this, bushel of wheat of 1936 will not sustain life a whit better or longer than its sister bushel of 1914, but 1936 walking plow is 40% longer-wearing plow. Improvements continue regardless. One of labor-saving developments of 1936 is speed and ease with which cultivators, planters, mowers, and other equipment can be put on and taken off farm tractor. There are two improvements which manufacturers need to make in near future. One is to reduce clatter and ear-splitting exhaust noises incident to operating power machinery, and other is to provide all implements like tractors, threshers, combines - anything likely to be transported on highway - with reflector glasses for safety of both operator of machine and passing motorist.

What's new in farm machinery? By R.U. Blasingame. Pennsylvania Farmer. v. 114, no. 5. February 29, 1936. p.6.

Farm Machinery & Equipment. (Cont'd)

What's new in machinery. By R.U. Blasingame. Pennsylvania Farmer. v. 114, no. 5. March 14, 1936. p. 16. Tests on traction efficiency of tractors.

Farm Mechanics.

Farm mechanics text and handbook. By G.C. Cook, L.L. Scranton and H. F. McColly. Danville, Ill., Interstate Printing Co., 1935. 450p.

Good harness deserves good care. By Ivan G. Morrison. American Agriculturist. v. 155, no. 5. February 29, 1936. p.5.

Federal Housing Administration.

Federal Housing Administration and subdivision planning. By Seward H. Mott. Architectural Record. v. 79, no. 4. April, 1936. p.257-262.

Fertilizer Placement.

Practical side of fertilizer application investigations. By H.R. Smalley. American Fertilizer. v. 84, no. 7. April 4, 1936. p. 7-8, 26.

Floods and Flood Control.

New England floods of 1936. By Harrison P. Ddy, Jr. Civil Engineering. v. 6, no. 5. May, 1936. p. 301-305. Startling early records of phenomenal runoff causing unheard of flows, heights and damage.

Florida Canal.

Florida ship canal. By Allen S. Park. Congressed Air Magazine. v.41, no. 4. April, 1936. p. 5000-5005.

Flow of Water and Gases.

Determination of the direction and velocity of flow of fluids. By Lionel S. Marks. Cambridge, Mass., 1934. 201-212 p. Harvard Engineering School publication no. 115. Reprinted from Journal of the Franklin Institute, February 1934.

Fundamental factors governing the streamline flow of water through sand. By Gordon M. Fair and Loranus P. Hatch. Cambridge, Mass., 1933. 1551-1565 p. Harvard Engineering School publication no. 109.

Fuels.

Compression and tractor fuels discussed at S.A.E. meet. Implement and Tractor. v. 51, no. 9. May 2, 1936. p. 12-13. Much of the Diesel clamor is removed. But its fuel economy, especially at part loads, is not overlooked. Engineers learn of tests showing the advantages of regular gasoline as a farm tractor fuel.

## Fuels. (Cont'd)

S.A.E. engineers argue distillates and Diesels. Farm Implement News. v. 57, no. 9. April 23, 1936. p. 26-27.

## Greenhouses.

Greenhouse building may be revolutionized. Idaho Farmer. v. 54, no.3. February 6, 1936. p. 12. Development that may change greenhouse construction and practice radically is the heat-insulated greenhouse, floor, walls, ends and one side of roof of which are made of heat insulating materials without windows. In other side of roof there is single row of sash, and interior walls and roof are painted white to take advantage of all light entering. Three hundred-watt lamps in dome type reflectors and controlled by automatic thermostats are used for double purpose of heating house and supplementing daylight, and lamps are only heat source used. Such construction is more economical than conventional, and has advantage of not requiring heating plant. Operating cost is comparable with that of stove-heated ordinary greenhouse, and maintenance is considerably less.

## Heat Transmission.

Thermal conductivity. By T.H. Cuderkirk. Aerologist. v. 12, no.4. April, 1936. p. 7-8, 27, 29. Part 2. Table gives conductances of air spaces for various widths of air spaces in inches.

## Heating.

Comfortable temperatures. By V.L. Sherman. American Builder. v. 58, no. 4. April, 1936. p. 106, 108, 110. Radiant heat - more reasons for insulation.

## Hotbeds.

Cost of wired heat for hotbeds. By Harold E. Pincher. New England Homestead. v. 109, no.5. February 29, 1936. p. 8. Diagram gives construction and wiring of electric heated hotbeds.

Electric hotbeds. By W.C. Krueger. New Brunswick, N.J., 1936. 16p. New Jersey Agricultural Experiment Station. Extension Service. Bulletin no. 171.

Electric soil heater adaptation simplified. Washington Farmer. v. 61, no. 8. April 16, 1936. p. 10. Manufacturers are offering it assembled for use, and all gardener has to do is "plant" it and plug into convenient electrical outlet. Such equipment provides trouble-free, dependable method of growing plants out of season, and a supply of early plants is one factor in reducing family budget for vegetables. Not only earliness but sturdiness is gained, and cost of operating is low. Average consumption per 24 hours in northern hotbeds varies from three-fourths of kilowatt hour to two, for each sash three feet by six.

## Houses.

Are these houses best values? American Builder. v. 58, no.3. March, 1936. p. 67-75. Each to cost less than \$5,000. Housing research project sponsored by Purdue University to develop cost and performance data.

Built to last. By Lewis E. Wolsh. Country Home. v. 60, no. 4. April, 1936. p. 68.

Farm home planning. By Deane G. Carter. Progressive Farmer. v. 51, no. 4. April, 1936. p. 9.

Good place to live. By John T. Flynn. Collier's. v. 97, no. 13. March 28, 1936. p. 10-11, 52, 54-56. Time when you had to arrange your life to suit your house is past. Now you can begin with your requirements for living and build your house to fit them. That's what "modern architecture" means. Collier's retained Edward D. Stone, distinguished modern architect, to draw plans of an ideal modern house for man of moderate means. Experts in other fields, taking full advantage of newest materials and latest devices, have collaborated to make it the last word in efficiency, economy and charm.

Happier farm homes. By R.M. Loper. Nebraska Farmer. v. 78, no.9. April 25, 1936. p. 1, 22. Well-kept buildings make life more pleasant and land more valuable.

Living conditions in New Hampshire farm homes. By Daisy Deane Williamson and Flora M. Miller. Durham, N.H., 1935. 16p. New Hampshire. University. Extension Service. Circular no. 169.

New series of statistics on construction costs of small houses. Monthly Labor Reviews. v. 42, no. 3. March, 1936. p. 647-648. Findings of Federal Home Loan Bank Board. Table gives total costs and cubic-foot costs of building the same typical house in 27 cities in January, 1936.

Shall we build or remodel? The Farmer. v. 54, no. 7. March 28, 1936. p. 6-7, 34.

## Insect Control.

Electrocution. Arizona Producer. v. 15, no. 3. April 15, 1936. p. 24. Simple, inexpensive trap can be made by hanging exposed electric lamp over pan of oil or water. Another enticing contrivance consists of a bare light encircled by electrified screen. Investigation has proven this type of trap to be efficient. The screen is charged to high potential by small transformer, and it spells death to every bug that socks the light. Tests made with different colored bulbs of varied intensity seem to prove that brilliant, deep blue light holds greatest lure, and that higher wattage, more efficient results up to 200 watts. Kills insects more cheaply and safely than poison sprays.

## Insulation.

Farm buildings need proper insulation. Wisconsin Agriculturist and Farmer. v. 63, no. 7. March 28, 1936. p. 10-11. Rigid insulation. Flexible insulation.

Fibrous glass for insulation. Ice and Refrigeration. v. 90, no. 5. May, 1936. p. 365. Some characteristics of fibrous glass as an insulating material. Developed as result of research. Variety of diameters and lengths available. Low density decreases amount of dead weight. Insulating properties. Possibilities for electrical insulation. Chemical applications. Tensile strength.

Heat insulation practice. By R.B. Regan. Southern Power Journal. v. 54, no. 5. May, 1936. p. 35-36. Table gives thickness of steam pipe insulation.

## Irrigation.

Developments in long-line irrigation. By Orlando H. Lyman. Reports of the Association of Hawaiian Sugar Technologists. 13th Annual Meeting, October 22 to 25, 1934. p. 69-82. Summarizing data at hand to date on long-line irrigation system, we find: 1. With close study it is felt that long lines may be installed profitably in most irrigated lands. Steep cut-up pali slopes alone remain unsuited. 2. Planting costs appear cheaper for long lines over most other systems. 3. Water may be adequately distributed to all parts of line by proper manipulation of length and grade of line, head of water used and installation of panis. 4. With what little data there are on water requirements of this system it appears that system, if properly installed, will not use much more water if any, and possibilities are that after more experience has been gained, we may be able to save a little water. 5. Implement weeding of banks but not bottom of cane row for cane grown in furrow, and complete weeding by implements for crops where water is run between cane rows is being practiced. 6. Man-day performance is definitely and substantially increased for irrigation. 7. Cane grown in this system appears easier on men to harvest. Small saving may be possible to plantation as more experience is gained. 8. Ratoonings is definitely cheaper. 9. With what experience is now at hand, as many ratoons appear possible as with old contour system.

Experiment runs 22 years. Oregon Farmer. v. 59, no. 7. April 2, 1936. p. 9. Show long-time value of irrigation and manure at O.S.C.

Field engineering problems arising from newer methods of irrigation. By C.A. Brown. Reports of Association of Hawaiian Sugar Technologists. 13th Annual Meeting, October 22 to 25, 1934. p. 83-88. Newer systems that have been installed at Pioneer Mill Co., are as follows: 1. Straight border. 2. Graded or contoured border. 3. Straight long line. 4. Graded or contoured long line. 5. Pioneer long line.

Get the most from water. By W.E. Code. Western Farm Life. v. 58, no. 8. April 18, 1936. p. 8. Careless, wasteful irrigation methods make higher crop production expenses.

### Irrigation. (Cont'd)

Overhead irrigation restores grove. By D.J. Whitney. California Cultivator. v. 83, no. 4. February 15, 1936. p. 120-121.

Progress made in irrigation research at Prosser. By H.P. Singleton. Reclamation Era. v. 26, no. 4. April, 1936. p. 96-97.

### Land Utilization.

Engineering reorganization of farms. By N.A. Kessler. Agricultural Engineering. v. 17, no. 4. April, 1936. p. 153-154. Measure of results will be indicated by increase in farm income or production as indicated by farm records, and increase in efficiency of operation by saving in time in performing different farm operations.

Land and land use. By P.E. Brown. Science. v. 83, no. 2154. April 10, 1936. p. 337-343. It would seem most desirable to emphasize the fact that proper land use requires planning first and then action. Plans must be safe and sound, if they are to be put into effect successfully. We must not plan narrowly, locally or with too much attention to immediate present. To be adequate plans must take into account many things. First of all, soil itself, its characteristics, capabilities and possibilities. Then proper use of it in interests of future. This involves elimination of uneconomic, sub-marginal areas, and purchase by government of such areas for pastures, forests, parks or recreation or wild-life areas. It also involves planned farm use of land in accordance with its abilities to support pasture or cultivated crops. Whole problem of live stock production enters picture here, and type of live stock, system of farming, etc. Relation of industry and close tie-up to agriculture demands sound land policy. Part-time farming has direct relationship to industry and may be important in future. Subsistence farming may also prove desirable. Finally, relation of land use to taxation must be borne in mind, and solution of tax problem must come along to permit of utmost success in adoption of any land use program.

Land use in Pennsylvania. By Paul I. Wrigley. State College. Penn. 1935. 39p. Pennsylvania, Agricultural Experiment Station. Bulletin no. 517.

### Lubrication.

Lubrication of Diesel engines. Contractors and Engineers Monthly. v. 32, no. 4. April, 1936. p. 30, 32. Choice of lubricants most important in all Diesels because of range of temperature and speeds.

### Lumber.

Selection of lumber for farm and home building. By C.V. Sweet and R.P. A. Johnson. Washington, D.C., 1936. 46p. U.S. Department of Agriculture. Farmers' Bulletin no. 1756.

Miscellaneous.

Cooperative purchasing of farm supplies. By Joseph C. Knapp and John H. Lister. Washington, D.C., 1935. 92p. Farm Credit Administration. Cooperative Division. Bulletin no. 1.

Cyrus Hall McCormick. Harvest, 1856-1884. By William T. Hutchinson. N.Y., D. Appleton - Century Company. 1935. 793p.

Farm chemurgic council points the way. By John E. Pickett. Utah Farmer. v. 56, no. 17. April 10, 1936. p. 3, 8.

Heating of liquid culture media for tomato production. By W.F. Gericke and J.R. Tavernetti. Agricultural Engineering. v. 17, no. 4.

Heating of liquid culture media for tomato production. By W.F. Gericke and J.R. Tavernetti. Agricultural Engineering. v. 17, no. 4. April, 1936. p. 141-142, 184. Table 1. Electrical energy consumed in heating nutrient solution to various temperatures, and average range in air temperatures in greenhouse. Table 2. Yield of ripe tomatoes per tank of 25 square feet water surface on plants grown 12 months. Results obtained from first effort of using heated-liquid media for forcing have been so encouraging that it appears safe to assume method can be perfected for greenhouse culture.

Microphotographic duplication in the service of science. By Watson Davis. Science. v. 83, no. 2157. May 1, 1936. p. 402-404. As one of its science research activities, Science Service has organized Documentation Division for development of microphotographic duplication mechanisms, and experimental operation of two services in scientific documentation; Bibliofilm Service, in cooperation with Library of U.S. Department of Agriculture, and auxiliary Publication Service, operated in cooperation with scientific journals. Microphotographic duplication consists of making reduced-size photographs, as when a typewritten or printed page is photographed on a frame of 35 mm motion picture film.

National archives and the advancement of science. By Solon J. Buck. Science. v. 83, no. 2156. April 24, 1936. p. 379-385. Enough has been said to make it clear that body of records known as national archives is of vital importance for advancement of science on many fronts. It remains to consider contributions that may be made to advancement of science by the new institution known as The National Archives. Obviously these will be primarily along line of promoting preservation of archives themselves, making their content and value known, and making them readily available to scientists wherever located. These results should be achieved not only for material transferred to custody of archivist but also for that retained by departments, in view of authority given to archivist to inspect records of government agencies wherever they are used, and to make recommendations to Congress with reference to proposals for destruction of supposedly useless papers. It may be confidently expected, moreover, that The

Miscellaneous. (Cont'd)

National Archives will make many contributions to what may for convenience be called archival science. Certainly it will engage in research on problems involved in repair, preservation, reproduction and utilization of documents and of film records; and its discoveries should tend to promote improvement in treatment of archives and historical manuscripts in depositories throughout the country.

Motor Oils.

Investigation of motor oils. By Burton J. Robertson. Minneapolis, Minn., 1935. 46p. Minnesota. Engineering Experiment Station. Bulletin no. 10

Run-off.

Relationship between tree-growth and stream runoff in the Truckee river basin, California-Nevada. By George Hardman and Orvis E. Reil. Reno, Nevada, 1936. 38p. Nevada. Agricultural Experiment Station. Bulletin no. 141.

Motors.

Electric motors for farm machinery. By F.E. Rowland. Rural Electrification and Electro-Farming. v. 11, no. 129. February, 1936. p. 287-291.

Plants, Effect of Light on

Light and its effects on plant growth. By Robert S. Withrow. Agricultural Engineering. v. 17, no. 4. April, 1936. p. 150-152. Studies on forcing of plant growth with artificial sources of radiation have resolved themselves into three general types. These include (a) studies with ultra-violet radiation, especially with regard to those regions which are normally present in sunlight and are removed by ordinary window glass. (b) Use of high intensities of visible light for supplementing daylight during cloudy weather or as whole or partial substitute for sunlight; and (c) application of low intensities for prolonging normal daylight period.

Poultry Houses and Equipment.

Brooder houses. By A.E. Tepper and others. Durham, N.H., 1935. 15p. New Hampshire. University. Extension Service. Circular no. 165.

Poultry equipment. By A.E. Tepper. Durham, N.H., 1935. 11p. New Hampshire. University. Extension Service. Circular no. 167.

Power Projects.

Big job harnessing western waters. By William E. Warne. Nation's Agriculture. v. 11, no. 7. April, 1936. p. 4-5, 28.

Power Projects. (Cont'd)

Tidal power at Passamaquoddy. Engineering News-Record. v. 116, no. 17. April 23, 1936. p. 583-590. In the face of serious political, economical and financial questions, the magnitude of the engineering job required to harness the tides at Eastport, Maine, to electric generators is now defined in fairly clear outline.

Refrigeration.

Analysis of absorption systems. By A.B. Stickney. Ice and Refrigeration. v. 90, no. 5. May, 1936. p. 322-324. Properties of ammonia-water solutions as related to absorption systems. New chart brings together data on liquid and vapor phases showing heat content and composition for purpose of analyzing absorption systems. Explanation of chart. Basic laws upon which analyses are based.

Code for testing domestic refrigerators using ice. Ice and Refrigeration. v. 90, no. 5. May, 1936. p. 329-330. Code for testing domestic refrigerators using ice in process of revision by sub-committee. Revised draft approved and submitted for consideration. Provides means for determining performance of ice refrigerators in ice meltage and internal temperatures. Comments and suggestions requested.

Farm and community refrigeration. By E.L. Carpenter and Mack Tucker. Knoxville, Tenn., 1936. 63p. Tennessee. Engineering Experiment Station. Bulletin no. 12.

Minimum construction requirements for ice refrigerators. Ice and Refrigeration. v. 90, no. 5. May, 1936. p. 328-329. New refrigerator code issued by National Association of Ice Refrigerator manufacturers. Refrigerators meeting these requirements permitted to carry insignia of National Ice Advertising, Inc. Minimum standards set up for satisfactory and economical operation.

Refrigeration. By Power Plant Engineering. Chicago, Ill., Technical Publishing Co., 1935. 334p.

Refrigeration on the farm. Rural Electrification and Electro-Farming. v. 11, no. 129. February, 1936. p. 275-276. Valuable practical information is given.

Solution to your milk cooling problems. By John C. Nicholas. Pennsylvania Farmer. v. 114, no. 8. April 11, 1936. p. 28, 31.

Some observations on the possibilities and limitations of freezing preservation of agricultural products. By H.C. Diehl. Ice and Refrigeration. v. 90, no. 5. May, 1936. p. 355-358. Paper read at Annual Convention of Association of Refrigerated Warehouses. Developments in refrigeration research contribute materially to enlarged service. Selection of suitable types of raw material. Low temperatures and other factors. Further research needed. Transportation and distribution.

### Reservoirs.

Large reservoirs in the United States. Reclamation Era. v. 26, no. 4. April, 1936. p. 88-89. Table gives name, state, river, year completed, purpose of storage, capacity, area, length, average width, shore line.

### Septic Tanks.

Septic tank is easy to make. By Walter Andrews. Oregon Farmer. v. 59, no. 8. April 16, 1936. p. 6.

Septic tank is easy to make. By Walter Andrews. Washington Farmer. v. 61, no. 8. April 16, 1936. p. 9. Gives diagram.

### Silt.

Transportation of sediment in suspension. By Lorenz G. Straub. Civil Engineering. v. 6, no. 5. May, 1936. p. 321-323. Outlines some findings of one such study - manner in which particles of various diameters distributed themselves in vertical section, effect of certain changes in chemical composition of water on mechanical composition of suspended load, and relation between stream discharge and quantity of sediment in suspension. Touches briefly on selection of model law to insure similarity in laboratory studies of sedimentation basins.

### Soil Conservation.

New soil conservation farm program. By J.W. Burch. Missouri Farmer. v. 28, no. 8. April 15, 1936. p. 3-4. Has three major objectives which are inseparably and of necessity linked with the national welfare. First of these aims is conservation of soil itself through wise and proper land use. Second purpose is re-establishment and maintenance of farm income at fair levels so that gains made by agriculture in past three years can be preserved and national recovery can continue. Third major objective is protection of consumers by assuring adequate supplies of food and fibre now and in future.

New soil conservation program. By Henry A. Wallace. American Fertilizer. v. 84, no. 7. April 4, 1936. p. 9, 26.

New soil program underway soon. Montana Farmer. v. 23, no. 15. April 1, 1936. p. 3. Two types of payments provided: Secretary Wallace explains plan.

New agricultural plan for soil conservation and national farm aid. Wisconsin Agriculturist and Farmer. v. 63, no. 7. March 28, 1936. p. 1, 6.

Regional conference on soil conservation program makes recommendations. Hoosier Farmer. v. 21, no. 4. April, 1936. p. 18-19, 30.

### Soil Conservation. (Cont'd)

Soil conservation plan for '36. Implement and Tractor. v. 51, no. 7. April 4, 1936. p. 16. Two classes of payments to qualifying farmers are provided based on acreages diverted to soil-conserving and soil-building crops. Five districts are established for administration of new act.

Soil conservation program. By Milton Mangum. Utah Farmer. v. 56, no. 17. April 10, 1936. p. 7-8.

### Soil Mechanics.

Practical soil mechanics at Muskingum - II. By Theodore T. Knappen and Robert R. Phillippe. Engineering News-Record. v. 116, no. 15. April 9, 1936. p. 532-535. Destabilizing effect of seepage.

Practical soil mechanics at Muskingum. -III. By Theodore T. Knappen and Robert R. Phillippe. Engineering News-Record. v. 116, no. 17. April 23, 1936. p. 595-598. Resisting strength of foundations.

Practical soil mechanics at Muskingum - IV. By Theodore T. Knappen and Robert R. Phillippe. Engineering News-Record. v. 116, no. 19. May 7, 1936. p. 666-669. Selection and control of embankment materials.

### Soil Moisture.

Differential influence of certain vegetative covers on deep sub-soil moisture. By H.E. Myers. Journal of American Society of Agronomy. v. 28, no. 2. February, 1936. p. 106-114.

Relation of fallow to restoration of subsoil moisture in an old alfalfa field, and subsequent depletion after reseeding. By C.O. Grandfield and W.H. Metzger. Journal of American Society of Agronomy. v. 28, no. 2. February, 1936. p. 115-123. Experiment was undertaken in 1930 on well-drained upland soil at Kansas Agricultural Experiment Station to obtain information regarding effect of fallow on restoration of subsoil moisture. This experiment was planned to determine rate of restoration of moisture during fallow periods ranging from 1 to 5 years, and rate at which this moisture was again depleted by new seeding of alfalfa.

### Soil Sterilization.

Disinfesting soils by electric pasteurization. By A.G. Nowhall and M. W. Nixon. Ithaca, N.Y., 1935. 20p. Cornell University. Agricultural Experiment Station. Bulletin no. 636.

### Soils.

Glance at the problem of alkali soils. By D.W. Pittman. Utah Farmer. v. 56, no. 18. April 25, 1936. p. 6, 8. Description of alkali soils. Causes of alkali soils. Determination of and tolerance for alkali soils. Treatment of alkali land.

### Soils. (Cont'd)

Our heritage - the soil. By R.M. Salter, R.D. Lewis and J.A. Slipher. Columbus, Ohio. 1936. 19p. Ohio State University. Agricultural Extension Service. Bulletin no. 175.

Summary of provisions of soil conservation and domestic allotment act. Utah Farmer. v. 56, no. 18. April 25, 1936. p. 5, 10.

### Sprays and Spraying Equipment.

Suitable pest machines necessary. By C. H. Brannon. Farm Machinery and Equipment. v. no. March 15, 1936. p. 9. Goes poison machine on farm is just as necessary as a plow, and should be considered regular implement. Proper poisoning should be considered just as necessary as cultivation or fertilization.

### Surveying.

Aerial surveying for measuring fields. By O. J. Marshall. Agricultural Engineering. v. 17, no. 4: April, 1936. p. 165, 184.

### Tires.

Effect of tractor tire size on drawbar pull and travel reduction. By Marvin J. Samuelson, Lloyd W. Hurlbut and C.W. Smith. Agricultural Engineering. v. 17, no. 4. April, 1936. p. 143-149. Results of work are shown under five divisions; 1. Comparing inflation pressures. 2. Comparing all tires at constant inflation pressure. 3. Comparing effective wheel diameters. 4. Comparing tire cross sections. 5. Comparing all tires for horsepower in one gear.

Rubber tires for farm machinery. By G.W. McCuen and E.A. Silver. February 29, 1936. p. 2. Summarized from Ohio Experiment Station Bulletin 556.

Those air tired wheels go round. By F. Hal Higgins. Implement. v. 33, no. 4. April, 1936. p. 13-15. Revolution in farm field influences heavy construction industry and spreads idea to all farm machinery, readjusting position of tracks.

### Tractors.

Builds tractor from old car parts. B.F. Gray. Farm and Ranch. v. 55, no. 3. February 1, 1936. p. 15.

158,460 tractors is 1935 record. Implement and Tractor. v. 51, no. 8. April 18, 1936. p. 13, 16. Bureau of Census figures reveal new high for production in present decade. Sales totaled 145,355 with 134,379 in domestic market. Also report on combines and threshers.

Servicing tractors important. J.B. Torrance. Wisconsin Agriculturist and Farmer. v. 63, no. 5. February 29, 1936. p. 9. Lubrication. Bearings. Carburetion. Air cleaners. Ignition.

Tractors. (Cont'd)

Tractor sales compared - 1935 with 1929. Farm Implement News.  
v. 57, no. 9. April 23, 1936. p. 21.

Walls.

Strength of monolithic concrete walls. By Frank E. Richart and Nathan M. Newmark. Urbana, Ill., 1935. 36p. Illinois. Engineering Experiment Station. Bulletin no. 277. Report of investigation conducted by Engineering Experiment Station, University of Illinois, in cooperation with Portland Cement Association. Made for purpose of obtaining information on strength and stability of monolithic concrete walls of types used in concrete house construction. Investigation was of nature of a reconnaissance of field rather than detailed study.

Water Proofing.

Experiments on exterior waterproofing materials for masonry. By Daniel W. Kessler. Washington, D.C., 1935. 317-343 p. U.S. National Bureau of Standards. Research Paper 771. Reprinted from Journal of Research. v. 14. March 1935.

Water Supply.

Conservation of Nebraska's water resources. By G.E. Condra. Lincoln, Neb., 1930. 19p. Nebraska. Conservation Department. Bulletin no. 3.

Replenishing worn-out water beds. By Ogden S. Jones. Outdoors America. NS v.1, no. 5. March, 1936. p. 8-9. Simple diversion dam which would spread flood waters over areas of high porosity would absorb much of that water, thereby recharging shallow water gravels. These diversion dams should be so located as to entail no economic loss from water spread. Construction of dams on such scale would of necessity be up to private initiative, and benefits obtained would accrue largely to farm owners in following manner: 1. Recharge the source beds his wells are dependent upon. 2. Check erosion on his farm. 3. Impound storm run-off thereby doing his part in lessening flood hazard.

Watering the Great Plains. By George S. Knapp. Engineering News-Record. v. 116, no. 19. May 7, 1936. p. 664-665. Effective conservation of groundwater, the Plains' most vital reserve against recurring periods of drought, awaits intensive engineering study, and a more satisfactory group of water-right laws.

Water Systems.

Water supplies and sewerage systems for country homes. St. Paul, Minnesota Department of Health, Division of Sanitation, 1935. 47p.

Weather.

Forecasting from synoptic weather charts. By Richard Hanson Weightman. Washington, D.C., 1936. 47 p. U.S. Department of Agriculture. Miscellaneous publication no. 236.

### Weeds.

Burn weeds on ditches. Arizona Producer. v. 15, no. 3. April 15, 1936. p. 19. New plan tried by water users lowers costs and improves service.

Wood control. By W.S. Ball and others. Berkeley, Calif., 1936. 87p. California Agricultural Extension Service. Circular no. 97. Attempts to picture weed problem in California, together with most practical and promising remedies now employed.

### Wheels.

Loaded spoked vehicle wheels. By Jos. B. Reynolds and F.L. Ehasz. Agricultural Engineering. v. 17, no. 4. April, 1936. p. 155-161. Following deductions may be made regarding axially-loaded spoked vehicular wheel: 1. Mathematical theory of elasticity was utilized in developing general and simplified methods of analysis for vehicular wheels with even number of spokes. 2. Critical rim and spoke moments are developed with two lowest spokes of wheel assuming equal angle with vertical. 3. When two spokes are vertical, lower spoke takes over ninety per cent of load; it is desirable, therefore, to design spokes so that they will carry entire load in this position. 4. Both analytical and photoelastic results confirm fact that two lower spokes of four-spoked wheel, with spokes at 45 degrees, develop higher stresses than upper spokes. This is contrary to opinion of former investigator. 5. Upper half of 6-spoked wheel in both critical positions had relatively small stresses. 6. Although there was some lack of agreement between analytical and experimental results, critical conditions which are most important from practical viewpoint were approximately similar with analytical solution practically always on safer side. 7. It is felt that graphical method of analyzing stresses in this problem leads to erroneous results. Present investigation takes into account elasticity as straight and curved rods, and as consequence approaches actual stress conditions most closely.

### Windows.

Bay windows. American Builder. v. 58, no. 4. April, 1936. p. 74-75.

Storm windows save fifth of cost of test house. Science News Letter. v. 29, no. 774. February 8, 1936. p. 84. Other results include: 1. Storm sashes practically eliminate entrance of soot. 2. Higher relative humidity can be maintained indoors before condensation appears on glass. 3. Storm windows reduce draft of cold air down windows and thus increase temperature of air near floor.

### World Power Conference.

World power conference plans taking definite form. By Glen E. Edgerton. Engineering News-Record. v. 116, no. 18. April 30, 1936. p. 636-637. Third World Power Conference will discuss national power economy. Second Congress on Large Dams to meet with the conference in Washington. Several tours planned.

